

*Hawley's*  
*Condensed Chemical*  
*Dictionary*

**THIRTEENTH EDITION**

*Revised by*  
Richard J. Lewis, Sr.



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decomposition of a molecule, with the addition of the elements of an acid to the molecule.

**acid phosphatase.** An enzyme found in blood serum that catalyzes the liberation of inorganic phosphate from phosphate esters. Optimum pH 5; is less active than alkaline phosphatase.  
Use: Biochemical research.

**acid phosphate.** An acid salt of phosphoric acid such as  $\text{NaH}_2\text{PO}_4$ ,  $\text{CaHPO}_4$ , etc. Also used to refer specifically to calcium phosphate monobasic,  $\text{Ca}(\text{H}_2\text{PO}_4)_2$ , or superphosphate of lime.

**acid potassium oxalate.** See potassium binoxalate.

**acid potassium sulfate.** See potassium bisulfate.

**acid precipitation.** (acid rain).

Any form of precipitation (wet deposition) having a pH of 5.6 or less, the most important deleterious components being the sulfur dioxide and oxides of nitrogen either emitted as stack gases in highly industrialized areas or resulting from volcanic activity. The most sensitive sections of the U.S. are the east and the extreme northwest; southeastern Canada is also affected. Acid precipitation is not only destructive to fish and other freshwater life, but also kills certain species of trees (especially spruce) and corrodes metal and cement structures. Industrial use of coal is largely responsible for the incidence of acid rain, especially in the northeast.  
See dry deposition.

**acid rain.** See acid precipitation.

**acid, soft.** See Lewis electron theory; acid.

**acidulant.** Any of a number of acids (chiefly organic) either occurring naturally in fruits and vegetables or used as additives in food processing. They function in the following ways: (1) as bacteriostats in processed foods, (2) as aids to the sterilization of canned foods by lowering the pH, (3) as chelating agents for metal ions such as iron and copper which catalyze rancidity reactions in fats, (4) as flavor enhancers by offsetting excessive sweetness by their tart taste. Commonly used acidulants are citric, acetic, fumaric, ascorbic, propionic, lactic, adipic, malic, sorbic, and tartaric acids.

**"Acidulin" [Lilly].** TM for glutamic acid hydrochloride acid value. The number of milligrams of potassium hydroxide required to neutralize the free acids present in 1 g of oil, fat, or wax. The determination is made by titrating the sample in hot 95% ethanol using phenolphthalein as indicator.

**acid value.** See acid number.

**Acid Yellow 9.** See 4-aminoazobenzene-3,4'-disulfonic acid.

**acifluorfen, sodium salt.** (Blazer).

Use: Selective herbicide for soybeans, peanuts, and rice.

**"ACL" [FMC].** TM for a series of solid, organic chlorine liberating compounds used in bleaches, cleansers, sanitizers, etc.

**"Aclar" [Allied-Signal].** TM for a series of fluorohalocarbon films.

**Properties:** Useful properties from -200 to +198C.

Use: In packaging applications where a transparent, vapor, and/or gas barrier is required, as in packaging of foods for astronauts. Used in electronic and electrical applications because of insulating and heat-resistant properties. Extreme chemical resistance and ability to seal make it useful as a tank lining, etc.

**"A-C-M" [Pfizer].** TM for a balanced mixture of ascorbic acid (vitamin C) and citric acid.

Use: As an antioxidant that protects flavor and prevents browning of fruits exposed to air. Used in home freezing and canning of fresh fruits.

**"Acofor" [Reichhold].** TM for pale, distilled tall oil fatty acids.

**Properties:** D 0.907 (25/25C), refr index 1.471 (20C), flash p 380F (193C) (OC), acid number 192, saponification number 194, unsaponifiable matter 2.5%, rosin acids 4.5%. Combustible.

Use: Paint and varnish, inks, soaps, disinfectants, textile oils, core oils, etc.

**"Aconew" [Reichhold].** TM for pale, distilled tall oil fatty acids with low rosin acid contents.

**aconite.** (monkshood; wolfsbane; friar's cow).

**Hazard:** Antipyretic drug, alkaloid poison.

**aconitic acid.** (propene-1,2,3-tricarboxylic acid).  $\text{H}(\text{COOH})_2\text{C}(\text{COOH})\text{CH}_2(\text{COOH})$ .

**Properties:** White to yellowish, crystalline solid. Mp approx 195C (decomposes). Soluble in water and alcohol. Combustible.

**Derivation:** (a) By dehydration of citric acid with sulfuric acid; (b) extraction from sugar cane bagasse, *Aconitum napellus*, and other natural sources.

Use: Preparation of plasticizers and wetting agents; antioxidant, organic syntheses; itaconic acid manufacture; synthetic flavors.

**aconitine.** (acetyl benzoyl aconine).

CAS: 302-27-2.  $\text{C}_{34}\text{H}_{48}\text{NO}_{11}$ .

**Hazard:** Highly toxic alkaloid, antipyretic drug, readily absorbed by skin.